

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Xiao-An Zhang et al

Serial No.: (Filed Herewith)

Examiner:

Filing Date: (Filed Herewith)

Group Art Unit:

Title: Bistable Molecular Mechanical Devices With A Band Gap Change Activated By An Electric Field For Electronic Switching, Gating, And Memory Applications



COMMISSIONER FOR PATENTS  
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

- (X) under 37 CFR 1.97(b), or  
(Within three months of filing national application; or date of entry of national application; or before mailing date of first office action on the merits; whichever occurs last)
- ( ) under 37 CFR 1.97(c) together with either a:  
( ) Statement under 37 CFR 1.97(e), or  
( ) a \$240.00 fee under 37 CFR 1.17(p), or  
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)
- ( ) under 37 CFR 1.97 (d) together with a:  
( ) Statement under 37 CFR 1.97(e), and  
( ) a petition under 37 CFR 1.97(d)(2), and  
( ) a \$130.00 petition fee set forth in 37 CFR 1.17(i).  
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)

Please charge to Deposit Account 08-2025 the sum of \$0.00 . At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 08-2025 pursuant to 37 CFR 1.25.

(X) Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Citation together with copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

( ) A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individuals(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

"Express Mail" label no. EL847766074

Date of Deposit March 7, 2001

I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, Washington, D.C. 20231.

By Mary Urbach  
Typed Name: Mary Urbach

Respectfully submitted,

Xiao-An Zhang et al

By David W. Collins

David W. Collins

Attorney/Agent for Applicant(s)

Reg. No. 26,857

Date: March 29, 2001

Telephone No.: (520) 399-3203

## PATENT APPLICATION

Sheet 1 of 5

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

10010538-1

SERIAL NO.

(Filed Herewith)

APPLICANT

Xiao-An Zhang et al

FILING DATE

(Filed Herewith)

GROUP

11040 U.S. PTO  
09/823195  
03/29/01

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS
	1A	6,128,214	10/3/2000	Kuekes et al	365	151
	1B					
	1C					
	1D					
	1E					
	1F					
	1G					
	1H					
	1I					
	1J					
	1K					

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	TRANSLATION	
							YES	NO
	1L							
	1M							
	1N							
	1O							
	1P							

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

1Q	U.S. Patent Application, Serial No.: 09/280,048 entitled "Chemically Synthesized and Assembled Electronic Devices", filed on March 29, 1999
1R	U.S. Patent Application, Serial No.: 09/280,225 entitled "Molecular Wire Crossbar Interconnects for Signal Routing and Communications", filed on March 29, 1999
1S	U.S. Patent Application, Serial No.: 09/282,045 entitled "Molecular Wire Crossbar Logic", filed on March 29, 1999

EXAMINER

DATE CONSIDERED

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

10010538-1

SERIAL NO.

(Filed Herewith)

APPLICANT

Xiao-An Zhang et al

FILING DATE

(Filed Herewith)

GROUP

11040 U.S. PTO

09/023195



## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS
	2A					
	2B					
	2C					
	2D					
	2E					
	2F					
	2G					
	2H					
	2I					
	2J					
	2K					

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	TRANSLATION	
							YES	NO
	2L							
	2M							
	2N							
	2O							
	2P							

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

2Q	U.S. Patent Application, Serial No.: 09/282,049 entitled "Demultiplexer for a Molecular Wire Crossbar Network", filed on March 29, 1999
2R	U.S. Patent Application, Serial No.: 09/280,188 entitled "Molecular Wire Transistors" filed on March 29, 1999
2S	C.P. Collier et al, "Electronically Configurable Molecular-Based Logic Gates", Science, Vol. 285, pp. 391-394 (16 July 1999)

EXAMINER

DATE CONSIDERED

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

10010538-1

SERIAL NO.

(Filed Herewith)

APPLICANT

Xiao-An Zhang et al

FILING DATE

(Filed Herewith)

GROUP

11040 U.S. PTO  
09/823195

03/29/01

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS
	3A					
	3B					
	3C					
	3D					
	3E					
	3F					
	3G					
	3H					
	3I					
	3J					
	3K					

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	TRANSLATION	
							YES	NO
	3L							
	3M							
	3N							
	3O							
	3P							

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

3Q	C.P. Collier et al, "A [2]Catenane-Based Solid State Electronically Reconfigurable Switch", Science, Vol. 289, pp. 1172-1175 (18 August 1000)
3R	A.M. Morales et al, "A laser ablation method for the synthesis of crystalline semiconductor nanowires", Science, Vol. 279, pp. 208-211 (Jan. 9, 1998)
3S	J.R. Heath et al, "A liquid solution synthesis of single crystal germanium quantum wires", Chemical Physics Letters, Vol. 208, pp. 263-268 (June 11, 1993)

EXAMINER

DATE CONSIDERED

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

10010538-1

SERIAL NO.

(Filed Herewith)

APPLICANT

Xiao-An Zhang et al

FILING DATE

(Filed Herewith)

GROUP

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS
	4A					
	4B					
	4C					
	4D					
	4E					
	4F					
	4G					
	4H					
	4I					
	4J					
	4K					

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	TRANSLATION	
							YES	NO
	4L							
	4M							
	4N							
	4O							
	4P							

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

4Q	V.P. Menon et al, "Fabrication and Evaluation of Nano-electrode Ensembles", Analytical Chemistry, Vol. 67, pp. 1920-1928 (July 1, 1995)
4R	T. Vossmeier et al, "Combinatorial approaches toward patterning nanocrystals", Journal of Applied Physics, Vol. 84, pp. 3664-3670 (Oct. 1, 1998)
4S	D.V. Leff et al, "Thermodynamic Control of Gold Nanocrystal Size: Experiment and Theory", The Journal of Physical Chemistry, Vol. 99, pp. 7036-7041 (May 4, 1995)

EXAMINER

DATE CONSIDERED

<b>FORM PTO-1449</b>  <b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b>  (Use several sheets if necessary)	<b>ATTY. DOCKET NO.</b> <b>10010538-1</b>	<b>SERIAL NO.</b> <b>(Filed Herewith)</b>
	<b>APPLICANT</b> <b>Xiao-An Zhang et al</b>	
	<b>FILING DATE</b> <b>(Filed Herewith)</b>	<b>GROUP</b>

**REFERENCE DESIGNATION****U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS
	5A					
	5B					
	5C					
	5D					
	5E					
	5F					
	5G					
	5H					
	5I					
	5J					
	5K					

**FOREIGN PATENT DOCUMENTS**

		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	TRANSLATION	
							YES	NO
	5L							
	5M							
	5N							
	5O							
	5P							

**OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)**

5Q	J.D.L. Holloway et al, "Electron-transfer reactions of metallocenes: Influence of metal oxidation state on structure and reactivity", Journal of the American Chemical Society, Vol. 101, pp. 2038-2044 (April 11, 1979)
5R	C.P. Collier et al, "Electronically Configurable Molecular-Based Logic Gates", Science, Vol. 285, pp. 391-394 (16 July 1999)
5S	

EXAMINER

DATE CONSIDERED